

REMARKS

Applicants have carefully examined the office action mailed November 28, 2003. Claims 1-21 and 23-29 are pending and have been rejected. Applicants respectfully traverse the rejections.

35 U.S.C. §103 Rejections

Claims 1-4, 6, 11, 13-15 and 17 were rejected under 35 U.S.C. § 103 as being unpatentable over Webster Jr. (U.S. Patent No. 5,057,092). Applicants respectfully traverse the rejection.

Webster, Jr. discloses a catheter shaft where a reinforcing mesh is sandwiched between an inner layer and an outer layer. The reinforcing mesh comprises helical threads coiled in a first direction, helical threads running in a second direction, and longitudinal axial threads. All the threads are interwoven such that any may be on top or underneath the others at various points along the catheter. The axial threads (i.e., longitudinal warp members) "increase the bending stiffness of the catheter body." Column 3, line 2. This is because the manufacturing process traps the threads of the reinforcing mesh in place, including the axial threads. "[T]he braid members are interwoven, under tension, around the inner wall. The outer wall is then applied by dipping, spraying, extrusion or any other suitable process." Column 3, lines 8-11. This process of assembling the inner layer, the reinforcing mesh (which by the weaving process described above puts the axial members of the mesh into contact with both the inner and the outer layers), and the outer layer locks the reinforcing mesh into place, which increases the bending stiffness of the catheter.

In contrast, the catheter of independent claim 1 provides a tubular braid comprising a first helical member interwoven with a second helical member, and an axial member disposed between the first helical member and the second helical member such that the axial member is always disposed over the first helical member when the axial member crosses the first helical member, and beneath the second helical member when the axial member crosses the second helical member. In other words, the axial member is disposed between the first helical member and the second helical member. Unlike the configuration of Webster, Jr., the catheter of claim 1 has enhanced tensile strength due to the axial members, without substantially increase the stiffness of the catheter.

Webster, Jr. teaches away from the configuration of claim 1. The configuration of longitudinal warp members disclosed in Webster, Jr. increases the stiffness of the catheter. This is advantageous to Webster, Jr. as it "reduces the criticality of the wall thickness and hardness of the inner tube and outer sleeve and, if desired, allows the use of smaller wall thicknesses and/or softer materials for the inner tube and outer sleeve". Column 3, lines 3-6. To modify the catheter of Webster, Jr. so that the longitudinal warp members do not increase the bending stiffness of the catheter would lessen these advantages listed by Webster, Jr. and make the catheter less suitable for its intended application.

For these reasons, Applicants submit that there is no motivation to modify Webster, Jr. to produce the invention of claim 1, and that claim 1 is consequently non-obvious over Webster, Jr. Applicants submit that claim 1 is in condition for allowance. As claims 2-4, 6, 11, 13-15 and 17 depend from claim 1 and contain additional elements, applicants submit that these claims are also in condition for allowance.

Claims 5, 7-8, 16 and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Webster, Jr. as applied to claim 1 and further in view of Stinson (U.S. Patent No. 5,891,191). Applicants respectfully traverse these rejections.

Stinson is directed toward a self-expanding stent. Stinson does not disclose the element of axial threads in a reinforcing layer, in the configuration claimed or in any configuration. As discussed above, Webster, Jr. does not disclose this element nor provide motivation for such a modification. Therefore, as claims 5, 7-8, 16 and 18 depend from claim 1, which Applicants submit is allowable, and contain additional elements, Applicants submit that these claims are in condition for allowance as well.

Claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Webster, Jr. as applied to claim 1 and further in view of Ken et al. (U.S. Patent No. 5,749,891). Applicants respectfully traverse this rejection.

The patent of Ken et al. is directed toward a vaso-occlusive device which comprises coiled coils. Ken et al. do not disclose a woven reinforcing layer and, therefore, do not disclose a woven reinforcing layer having axial threads in the configuration claimed. As discussed above, Webster, Jr. does not disclose this element nor provide motivation for such a modification. As

claim 12 depends from claim 1 and contains additional elements, Applicants submit that claim 12 is in condition for allowance.

Claims 9-10, 19-21 and 23-29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Webster, Jr. and further in view of Martin et al. (U.S. Patent No. 6,361,637). Applicants respectfully traverse the rejection.

Claims 9-10, and 19-21 depend indirectly from claims 1 and 13, respectively, which Applicants believe are in condition for allowance. For these reasons and because the claims recite additional elements, Applicants submit that claims 9-10, and 19-21 are in condition for allowance as well.

Claim 23 is similarly in condition for allowance. As discussed above with respect to claim 1, Webster, Jr. does not disclose a reinforcement layer comprising a tubular braid having a first helical member interwoven with a second helical member and an axial member disposed between the first helical member and the second helical member such that the axial member does not cross beneath the first helical member or over the second helical member. Martin et al. do not correct these deficiencies. Martin et al. do not disclose any structure corresponding to the reinforcement layer. In particular the second helical member and the axial member are completely lacking. Nor do Martin et al. contain suggestion or motivation to modify Webster, Jr. to produce the claimed invention. As the prior art, alone or in combination, does not disclose each and every element of the claimed invention, Applicants submit that claim 23 is in condition for allowance. As claims 24-27 depend from claim 23 and contain additional elements, Applicants submit that these claims are in condition for allowance as well.

Neither Webster, Jr. nor Martin et al. disclose all the elements of claim 28. In particular, the reinforcement layer as claimed is not disclosed by either. Webster et al. do not teach an axial member positioned between a first helical member layer and a second helical member layer such that the axial member always crosses over the first helical member and under the second helical member. The configuration of claim 28 produces an elongate medical device having improved tensile strength while retaining flexibility. In contrast, and as discussed above, Webster Jr. discloses a woven mesh where the axial member both crosses beneath the first helical member and above the second helical member, and thereby increases the stiffness of the device. Martin

et al. do not disclose these elements either. Applicants therefore submit that claim 28 is in condition for allowance.

Claim 29 recites an axial member disposed within a reinforcing member having a first member and a second member such that the axial member always crosses over the first member and under the second member. Therefore, for the reasons discussed above with respect to claim 28, Applicants submit that claim 29 is in condition for allowance.

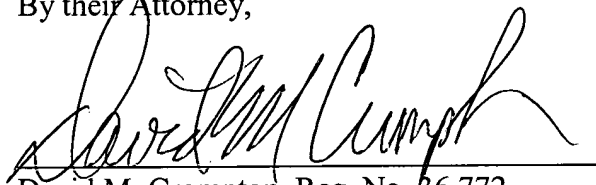
Reexamination and reconsideration are respectfully requested. It is respectfully submitted that all pending claims are now in condition for allowance. Issuance of a Notice of Allowance in due course is requested. If a telephone conference might be of assistance, please contact the undersigned attorney at (612) 677-9050.

Respectfully submitted,

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By their Attorney,

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